

WHAT IS CLAIMED IS:

1. A prosthesis adapted for inter-luminal placement by endovascular deployment, the prosthesis comprising a plurality of self expanding stents together defining an elongate substantially cylindrical lumen wall engaging surface and at least one of the stents having a bio-compatible graft material cover defining a covered portion, whereby the cover is adapted to close off a rupture in the wall of the lumen and the stents are adapted to provided pressure on the wall of the lumen adjacent to and extending away from the rupture.
2. A prosthesis as in Claim 1 wherein the cover encompasses at least two of the plurality of stents and the cover is stitched or otherwise fastened to the stents in the covered portion.
3. A prosthesis as in Claim 1 wherein the covered portion of the prosthesis is at the proximal end of the plurality of stents.
4. A prosthesis as in Claim 1 wherein uncovered stents extend away from the covered portion and are linked by flexible links.
5. A prosthesis as in Claim 1 wherein uncovered stents extend away from the covered portion and are linked by a thread or fibre such as a suture threaded through the bends of the zig-zag stents.
6. A prosthesis as in Claim 1 wherein the thread or fibre such as a suture is connected to each bend by a knot such as at least one of a half hitch, a thumb knot, two half hitches or a clove hitch.

7. A prosthesis as in Claim 1 wherein a proximal end of the covered portion of the prosthesis includes barbs extending from a stent of the pluralities through the cover to engage with the wall of the lumen when deployed.
- 5 8. A prosthesis as in Claim 1 wherein there are at least three covered stents of the plurality each of the zig-zag type and constructed from stainless steel or Nitinol and up to eight or ten uncovered stents of the plurality formed from stainless steel or Nitinol.
9. A prosthesis as in Claim 1 wherein the uncovered portion is in
10 the form of a self expanding spiral stent of zig-zag configuration.
10. A prosthesis for treatment of an aortic dissection comprising a substantially cylindrical body in an expanded state having at least one self expanding stent covered by a bio-compatible graft material and a self expanding stent assembly extending from a distal end thereof.
- 15 11. A prosthesis as in Claim 10 further including included barbs extending from a proximal end of the graft material.
12. A prosthesis as in Claim 10 wherein the self expanding stent assembly extending from a distal end of the biocompatible graft material is formed from a biocompatible and biodegradable mesh material.
- 20 13. A deployment device and prosthesis for treatment of an aortic dissection, the prosthesis comprising a substantially cylindrical body in an expanded state having at least one self expanding stent covered by a bio-compatible graft material and a self expanding stent assembly extending from a distal end thereof, and the deployment device comprising an

elongate catheter adapted to be deployed over a guide wire, a nose cone at the proximal end of the elongate catheter, a trigger wire arrangement adapted to retain a proximal end of the prosthesis in a retracted state, a sheath arrangement over the elongate catheter adapted to retain the prosthesis in a contracted state around the elongate catheter, means at the distal end of the elongate catheter to release the trigger wire arrangement and means to withdraw the sheath arrangement.

14. A deployment device and prosthesis for treatment of an aortic dissection as in Claim 12 wherein the elongate catheter includes means to supply an angiographic contrast medium at a distal end thereof through the catheter and the nose cone includes discharge ports for the angiographic contrast medium.

15. A method of treatment of aortic dissection disease comprising the steps of

a) loading a prosthesis onto a deployment device, the prosthesis comprising a plurality of self expanding stents together defining an elongate substantially cylindrical lumen wall engaging surface and at least one of the stents having a bio-compatible graft material cover, whereby the cover is adapted to close off a rupture in the wall of the lumen, the deployment device including means to retain a proximal end of the prosthesis in a retracted state and a trigger wire arrangement to release the proximal end of the prosthesis, a sheath to retain the entire the prosthesis in a retracted state and means to withdraw the sheath,

b) endovascularly deploying the deployment device with the prosthesis loaded thereon to the site of the aortic dissection,

- c) checking by radiographic techniques that the covered stent or stents are at the site of the aortic dissection,
- d) withdrawing the sheath to expose the covered stent or stents of the prosthesis,
- 5 e) releasing the proximal end of the prosthesis by means of releasing the trigger wire arrangement,
- f) withdrawing the sheath to deploy the other stents of the prosthesis along the wall of the lumen such that they provide pressure against the wall of the lumen, and
- 10 g) withdrawing the deployment device.

16. A method of treatment of aortic dissection disease as in Claim 15 wherein the covered stent or stents are at the proximal end of the prosthesis.